

NEWS BULLETIN

समाचार
पत्रिका



NEPAL GEOLOGICAL SOCIETY
नेपाल भौगर्भिक समाज

(स्थापना २०३७ साल, सन् १९८०)

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P. O. BOX 231
KATHMANDU
NEPAL

NEPAL GEOLOGICAL SOCIETY
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1992-94

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Best Wishes

and

Hearty Felicitations

on

the 44th Anniversary of

National Democracy Day

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Editorial

The Nepal Geological Society is pleased to bring out this issue of News Bulletin on the auspicious occasion of the 44th anniversary of National Democracy Day of Nepal. The Society takes this opportunity to express its deep gratitude to martyrs who sacrificed their lives for the restoration of democracy in Nepal.

The restoration of multi-party democratic system in the country has opened up the society, necessary for the development of science and technology as well. The Society is of the opinion that now it has become the responsibility of the scientists' community in the country to come forward in unity to utilize this opportunity for the advancement in science and technology and for the betterment of the countrymen.

All the members must have noticed that the Society has improved its *modus operandi*, so to achieve its objectives and goals. It has set up several sub-committees in order that a team spirit could be maintained and a group-decision making process could be exercised in the Society's activities.

The Society has organized several scientific meetings and programs, dedicated to different fields of geosciences. They were participated by numerous outstanding national and international geoscientists and engineers. The successfully conducted "International Seminar on Hydrology with a Special Colloquium on Environmental Problems and Water Resources of Himalayan Region", from April 19-21, 1993 in Kathmandu by the Society is one such activity. The Society has been organizing seminar on the topics of Himalayan environment, natural hazard mitigation and disaster prevention on the IDNDR Day. This year, the Society organized a national meeting and seminar on "Geoscientific Inputs in Natural Disaster Management" on October 13, 1993 in Kathmandu. The 9th Himalaya-Karakorum-Tibet workshop is to be organized by the Society on 1-4 April 1994 in Kathmandu. It is expected to be participated by many of the prominent Himalayan geoscientists from different parts of the world. The Society places its priority on the need of national and international networking of our members and the Society in order that the knowledge and experiences could be mutually shared at an international level.

At present, the publications of the Society goes to a much wider audience, which has been helped much by the Society's regular exchange program with similar organizations in different parts of the world.

The Nepal Geological Society is proud to state that it represents a sizable community of geoscientist and related engineers, with over three hundred national and international members at present. They are working in different organizations and institutions, and are making valuable contributions to the development efforts of the country. The Society believes that it can contribute more in the coming days in many new arena.

The Society extends its best wishes to all the readers for a happy and prosperous 1994.

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NGS News

1. Nepal Geological Society organized a scientific lecture program jointly by Dr.R.Sharpe, A.M.Dixit and R.Jury on "Seismic Hazards Mapping and Risk Assessment for Nepal" in the auditorium of the Department of Mines and Geology on March 12, 1993.
2. "International Seminar on Hydrology with Special Colloquium on Environmental Problems and Water Resources of Himalayan Region" was successfully organized by Nepal Geological Society (NGS) jointly with Association of Hydrologist of India (AHI) on April 19-21, 1993 in Kathmandu. The abstract volume containing the papers accepted for the Seminar was published by the NGS at the time of the Seminar.
3. Mr. J. N. Shrestha was nominated from the NGS and participated in the training course in Kathmandu on "Disaster Management Training Program" conducted jointly by Home Ministry, Nepal/UNDH/ADTCP and UNDP from May 2-14, 1993.
4. The 16th meeting of the Seventh Executive Committee of NGS held on June 3, 1993 decided to organize the "9th Himalaya-Karakorum-Tibet Workshop" on 1-4 April, 1994 in Kathmandu and formed a 27 members' Organizing Committee for its successful completion.
5. As per the decision made in the first meeting of 9th Himalaya-Karakorum-Tibet Workshop Organizing committee held on June 10, 1993 the first circular of the Workshop along with the Participation Form was widely circulated from June 15, 1993.
6. The 18th meeting of NGS Executive Committee held on July 30, 1993 decided to raise fund from its members and to send the collection to the Prime Minister's Relief Fund for the Flood Victims of the natural calamity in the country.
7. The NGS made request to AGID News Bulletin, ITC Journal and Geotimes to publicize the event of the 9th Himalaya-Karakorum-Tibet Workshop.
8. Under the exchange program of NGS publications with similar organizations in different parts of the world, the Society arrived into agreement to exchange regularly its Journal of Nepal Geological Society with the 'Geologisches Jahrbuch' of Germany, Geological Survey of Iran, B. G. R. of Germany, Bayerisch Staatssammlung für Paläontologie und historische geologie of Germany, Institute of Geology, Panjab University of Pakistan and Geological Society of Hong Kong.
9. The second meeting of the 9th Himalaya-Karakorum-Tibet Workshop Organizing Committee held on July 30, 1993 made decisions on the persons responsible for preparing the technical guides for the proposed three excursions programs, Excursion fee amounts, Participants Registration fees amounts and also agreed to publish an abstract volume of the workshop at the time of the Workshop.
10. The 19th meeting of the NGS Executive Committee held on August 20, 1993 agreed to call a joint meeting with the members of Advisory Board and the Coordinators of different NGS Sub-Committees on September 2, 1993 with a view to seek advice for the coming activities of the Society and to discuss about the present educational plan and policy of the country.

The same meeting of the Executive Committee also decided to table the following three proposals for approval during the 14th Annual General Body meeting.

- to honor two prominent geoscientists as "Honorary Members" of the Society in accordance with Article 9, Sub-article 1 of the constitution of the Society.
 - to raise the membership fee amount of the Society in accordance with the modification of Article 8, Sub-article 1, 2 and 3 of the constitution of the Society.
 - to increase the subscription rate for the NGS Journal.
11. The joint meeting of the NGS Executive Committee, the Advisory Board and Coordinators of different NGS Sub-Committees held on September 2, 1993 agreed on the followings:
- A task force including Dr.C.K.Sharma, Mr.A.M.Dixit and Dr.M.P.Sharma will pay visits and circulate widely the write-up on the development and promotion of the application of Geological Sciences to National Development, to promote and foster the professional standards including the suggestions to design the course of study on Earth Science for the teaching institutes in the revised educational material of the country to all the relevant Ministers, Secretaries, Director Generals, Planning Commission and other relevant organizations.
 - Make additional correspondence with Chinese Academy of Sciences, Indian Academy of Sciences, UNESCO, ICIMOD, Natural Resource Division of ESCAP regarding the funding and active participation for the forthcoming 9th Himalaya -Karakorum-Tibet Workshop to be held in Kathmandu on 1-4 April, 1994.
 - To approach the RONAST regarding the possibility of sponsoring the Nepalese participants in 9th Himalaya-Karakorum-Tibet Workshop.
- To categorize the participants registration fee for the SAARC countries and others for the Workshop.
 - A three members' Working Committee including Dr. R. P. Bashyal, Mr.K.P.Kafle and Dr. R. M. Tuladhar were formed to work out and suggest the names of two prominent geoscientists for awarding the 'Honorary Membership' of the Society to the Executive Committee before September 8, 1993, so that the Executive Committee will propose their names, in the 14th Annual General Body meeting for the approval.
 - Regarding the composition of the newly formed IGCP National Committee of Nepal, Mr.A.M.Dixit will write a letter to the IGCP (Nepal) and the IGCP (Paris) reflecting the dissatisfaction of the NGS and also suggesting to include a representative from NGS and other relevant academic institutions.
12. The 14th Annual General Body of the Nepal Geological Society met on September 10, 1993 in the auditorium of the Department of Mines and Geology in a cordial atmosphere under the Chairmanship of Mr. A. M. Dixit, the President of the Society. The Secretary and the Treasurer presented their annual reports. The presentation of reports was followed by discussion on the following three proposals made by the Executive Committee. All the three proposals were unanimously approved by the General Body.
- Dr. Chandra Kanta Sharma of Nepal and Dr. Pierre Bordet of France were to be honored as 'Honorary Members' of the Nepal Geological

Society. The honor will be awarded during the 9th Himalaya-Karakorum-Tibet Workshop, to be held in

Kathmandu on 1-4 April, 1994.

To raise the NGS Membership fee as below:

Countries	Nepal/SAARC Countries	Other Countries
Entrance Fee	NRs. 100.00 (or equivalent currency)	US \$ 5.00
Annual Fee:		
- Members	NRs. 100.00 (or equivalent currency)	US \$ 10.00
- Associate Members	NRs. 50.00 (or equivalent currency)	—
Life Members	NRs. 1000.00 (or equivalent currency)	US \$ 100.00 (Including Entrance Fee)
Student Members	NRs. 50.00 (or equivalent currency)	—

To increase the subscription rate for NGS Journal as follows:

Countries	NGS Members	Non- Members
Nepal	NRs. 35.00 (or equivalent Currency)	NRs. 120.00
SAARC Countries	US \$ 5.00* (or equivalent Currency)	US \$ 8.00*
Other Countries	US \$ 8.00* (or equivalent Currency)	US \$ 10.00*
* This rate does not include postal charge		

The approval of the proposals was followed by the discussion on the current topic of natural calamity in the country. A number of members expressed their views and opinions on the issue. The discussion regarding the professional development and application of geological sciences, representation of NGS in IGCP National Committee and IDNDR national committee, forced retirement of some of the NGS members during their service period etc. became the main topics of discussion. The meeting made suggestions to the Executive Committee for the necessary action on the same.

13. The Nepal Geological Society organized a one day Seminar on 'Geoscientific Inputs in Natural Disaster Management' on October 13, 1993 to commemorate the International Decade for Natural Disaster Reduction (IDNDR) Day in Kathmandu.
14. Ms. Rama Shrestha was nominated from the Society and participated in "Disaster

Management Country Workshop" in Kathmandu, conducted jointly by Home Ministry, Nepal/UNDHA/DTCP/UNDP/DPTC from October 31 to November 3, 1993.

15. The Second circular of 9th Himalaya-Karakorum-Tibet Workshop was circulated from September 25, 1993 in accordance with the decision made by the first meeting of Workshop Organizing Committee.
16. The Third meeting of the Organizing Committee of the 9th Himalaya-Karakorum-Tibet Workshop, held on January 26, 1994, discussed on the final preparation of workshop regarding all the aspects of the Workshop such as Technical, Financial, Secretarial and Logistic support including the program for inaugural ceremony, publication of abstract volume etc. It decided to circulate the Third Circular within the same month.

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नेपाल भौगर्भिक समाजको सेप्टेम्बर १०, १९९३ मा आयोजना गरिएको चौधौँ बार्षिक साधारण सभामा सचिव श्री गंगा बहादुर तुलाधर र कोषाध्यक्ष श्री शारदेश राज शमाले प्रस्तुत गर्नु भएको प्रतिवेदनहरूको साथै तत्पश्चात सभामा भएको छलफल तल प्रस्तुत गरिएका छन् ।

Annual Report by Mr. G. B. Tuladhar, Secretary, NGS

Mr. Chairman
Members of the Society.

First of all, I welcome and greet you all in this 14th Annual General Body Meeting of our Nepal Geological Society on behalf of the 7th Executive Committee. It is my pleasure to present here the actual state and the activities of the Society conducted during the first year of our office.

Dear friends, the Society is committed to its objective of developing and promoting the application of geological sciences to national development. In this context, we have improved its modus operandi and set up several NGS sub-committees and we are working together in a team spirit to fulfill the individual responsibility and exercise group decision making process and for furthering its professional activities both in national and international levels.

This time, the society has been able to re-establish its tradition of observing a Bi-annual function by organizing a bi-annual dinner programme on September 23, 1992.

Mr. A.M. Dixit, the current president represented the Society and participated in the meeting on new RONAST Act, convened by Dr. K.L. Shrestha, the Vice-Chancellor of the RONAST on November 25, 1992.

We are encouraged that the Society has gained considerable strength in its membership. The total registered members of the Society to date is 294 with 52 associate members. The distribution of the Memberships stands as follow:

Country/Continent	Life Members	Members
Nepal	105	72
America	29	4
Australia	4	-
Europe	34	9
Japan	26	3
Others	5	3
	203	91

At present, the Society represents a strong scientific community of multi-national geoscientists, actively contributing in understanding the natural processes and phenomena in the Himalayan. They are capable of providing expert service and opinion to the government and other executing agencies for their effective planning and utilization of natural resources, mitigation of natural and man-made hazards as well as helping protect the environment of the country.

Under the exchange program of our publication with similar organizations in different parts of the world, we have been able to decide the exchange program with five international organizations and societies as follows:

1. Geological Society of Hong Kong, Hong Kong
2. Institute of Geology, Punjab University, Pakistan
3. Bayerische Staatssammlung für Paläontologie und historische Geologie, Germany
4. B. G. R., Germany
5. Geological Survey of Iran, Iran

This year the Society had an opportunity to nominate two members for the participation in certain program/training course.

Mr. J. N. Shrestha was nominated from the Society and participated for the training course in Kathmandu for 2 weeks on "Natural Disaster Management Training Programme", conducted jointly by Home Ministry, Nepal/UNDH/ADTCP and UNDP. Similarly, Mr. U. Shakyawar was nominated from the Society for "Disaster Prevention and Mitigation Training Course" in AIT, Bangkok.

Dear members, Organization of Seminars/Workshops and Scientific Lectures is one of the main objectives of the Society for developing the geoscientific knowledge and promoting the application of geological sciences to national development.

The Society successfully organized a one day Seminar on Geological Hazards and Environmental Problems in Nepal on October 14, 1992 to commemorate the International Decade for Natural Disaster Reduction Day. The abstracts of the eight presented papers are also published in the NGS News Bulletin, Vol. 10. For the forthcoming IDNDR day in October 1993 also, the Society anxiously expects meaningful papers from our members for the successful organization.

With the active support and participation of all the members, the Nepal Geological Society could successfully organize 'International Seminar

on Hydrology with a special Colloquium on Environmental Problems and Water Resources of Himalayan Region' jointly with the Association of Hydrologists on India on April 19-21, 1993 in Kathmandu. However certain amendments in the initial agreement with the AHI were made before the Seminar date. Although a total of 113 papers including Key-note and Colloquium papers were received, all the papers were not presented in the 3 day seminar due to the absence of the participants themselves. The abstract volume was published at the time of the seminar.

As you know already, the Society is going to organize the '9th Himalaya-Karakorum-Tibet Workshop' on April 1-4, 1994. The Executive Committee had formed a 27 members' Organizing Committee for its successful completion. The first circular of the Workshop along with participation form have already been circulated among different national and international scientific communities. Till this date, positive responses from 48 interested participants from different countries have already been received. I humbly request all the members of the Society for the active cooperation and support in making the forthcoming workshop a grand success.

This time, we have been able to organize only two scientific lectures. The first lecture was on November 13, 1992 by Dr. S. Shah on the topic 'Rock Engineering in Underground Excavation with the Case Histories of Taiwan and Argentina and Some Examples of Karnali-Chisapani and Kulekhani area in Nepal'. The second lecture was delivered jointly by Dr. R. Sharpe, A. M. Dixit and R. Jury on March 12, 1993 on the topic "Seismic Hazards Mapping and Risk Assessment for Nepal". It can, in no way, be considered as satisfactory and so I request all the members of the Society to come forward in sharing your scientific observations and understandings among the Society members and by helping to organize the scientific lecture programme frequently.

Dear colleagues, On the publication activities of the society, we could bring out the updated issue of

NGS Brochure on January 1993 in order to promote the Society, its objectives and activities, both nationally and internationally.

The February 1993 issue of the NGS News Bulletin, Vol 10 has been published and has already been distributed among the members and various agencies. The Society has been able to include a maximum number of advertisements in this News Bulletin as a result of increasing number of sponsors and well-wishers.

The Journal of Nepal Geological Society, Vol. 9 is in the process of publication and will take some time before it would be in print. In spite of the utmost effort of all the members of the Editorial Board and others, the new volume of the Journal could not be published in time and I apologize for the same. The lack of scientific papers, their unavailability in time and the time lapsed between the editor and the author for revising the papers are the some of the causes for the delay.

As you know, we are very keen to bring out our publications regularly and timely. But it demands submission of the relevant material for the News Bulletin and the Journal timely i.e. by Mid-January and end of February respectively of the same year. But, it has still not been possible to put this into effect. At the same time, it is observed that the contributors are found not to follow strictly the instructions made for the submission of papers for Journal. Therefore I request all the members of the society to cooperate actively in this regard by providing their scientific contribution in time for the forthcoming issues.

Dear friends, The financial situation of the Society is encouraging and its details will be presented by our Treasurer. As a remark, I must say that during the past one year, the 7th Executive Committee held 20 meetings. Except a few, most of the major decisions taken by those Executive Committee meetings could be successfully

implemented with the active support of all the members. Before concluding this annual report, I would like to thank all the members of the Society for their cooperation in various activities of the Society. Thanks are due to the Department of Mines and Geology, Petroleum Exploration Promotion Project, and Tribhuvan University, Central Department of Geology for providing space and equipment facilities in order to carry out various professional activities of the Society. We hope for their continued support in the Society's activities in the times to come.

Thanks are also due to all the advertisers, sponsoring agencies for the International Seminar on Hydrology and the speakers of the scientific lectures. Above all, I thank all the coordinators, the members of all the NGS sub-committees and the active members for their perpetual support in conducting the Society's activities and hope for their continuation in future also.

Lastly, I would like to table the following three proposals recommended by the 20th Executive Committee Meeting for approval by this Annual General Body Meeting:

1. To honor two prominent geoscientists as **Honorary Members** of the Society, in accordance with Article 9, Sub-article 1 of the constitution of the Society.
2. To raise the membership fee of the Society in accordance with the modification of Article 8, Sub-article 1,2 and 3 of the constitution of the Society.
3. To increase the subscription rate for the NGS Journal.

I hope these proposals made by the Executive committee will be thoroughly discussed here in this meeting and will be approved by the majority, if justified.

Thank you

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Annual Financial Report by Mr. S. R. Sharma, Treasurer, NGS

Mr. Chairman and Respectable Members of the Society

First of all, I would like to thank all of you for providing me this opportunity to speak few words as a treasurer of Nepal Geological Society.

To maintain the book keeping systematically and scientifically, I kept Ledger Book, Cash Book, Stock Book, Vouchers and necessary bills according to accounts' rules & regulations. With these account data and with the approval of the chairman now I would like to put forward the details of receipt and payment from 17th Jestha 2049 to 32nd Shrawan 2050.

The Balance sheet of Receipt and Payment is as follows:



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**The members
Nepal Geological Society
Kathmandu.**

Gentlemen,

I have audited the Receipt Payment Account and Income & Expenditure Account for the year ended 32nd Srawan, 2050 on that data annexed there to and reports as follows:

1. I have got satisfactory answer and explanation about questions asked during the time of audit.
2. Books as required are maintained according to company laws.
3. The attached Receipt & Payment Account and Income & Expenditure Account is drawn properly up in accordance with records which are made available to me.
4. According to the information given to me the attached Income & Expenditure a/c prepared for the year ended 32nd Srawan, 2050 exhibit true and fair view.

Sd/

Regd. Auditor

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NEPAL GEOLOGICAL SOCIETY

RECEIPT & PAYMENT ACCOUNT

For the year 17th Jestha, 2049 to 32nd Srawan, 2050

RECEIPT	AMOUNT	PAYMENT	AMOUNT
To Cash & Bank Balance	165489.77	By Advertisement	9522.00
To Advertisement received	24000.00	By Bulletin & Journal Printing	98533.00
To Sale of Journal	11493.60	By Postage & telegram	4547.70
To Sale of Vest	750.00	By Stationery & Typing	9754.01
To Interest on deposit	27554.51	By Catering Services	73322.75
To Life membership fees	29557.10	By Post Box renewal	1911.00
To Ordinary Membership Fees	2496.40	By Remuneration	2215.00
To Associate Membership Fees	420.00	By Misc. Expenses	12614.00
To Misc. Income	3253.00	By Tax on interest	45.96
To donation from BGR	74825.00	By Annual function expenses	33202.50
To Donation from Lahmeyer	70000.00	By Souvenir	17250.00
To Donation from ICIMOD	49750.00	By Fuel	5077.00
To Donation from Nippon Koei	30000.00	By Lodging & Boarding for Indian Participation	25000.00
To Donation from B. P. Memorial Trust	24990.00	By Traveling allowance	14354.00
To Donation from Takenaka	5000.00	By Karakorum expenses	1642.00
To Donation from Hutsumi	2000.00	By Balance:-	
To Donation from Hiroyashi	1500.00	Nabil (Saving)	134667.05
To Income on Annual function	22950.00	Nabil (Fixed)	29000.00
To Registration fees from Seminar Participants, etc.	86498.50	NBL (Saving)	5110.78
		NBL Lazimpat (Current)	11575.25
		NBL Bhotahity (Current)	9949.60
		NBL (Fixed)	37000.00
		ADB (Saving)	38673.01
		ADB (Fixed)	37000.00
		Cash in hand	20561.48
	632528.21		632528.21

As per attached report

Sd/
Treasurer

Sd/
Secretary

Sd/
President

Sd/
Auditor

NEPAL GEOLOGICAL SOCIETY

INCOME & EXPENDITURE ACCOUNT

For the year ended 32nd Srawan, 2050

EXPENDITURE	AMOUNT	INCOME	AMOUNT
To Advertisement	9522.00	By Sales of Journal	11493.60
To Bulletin & Journal Printing	98533.00	By Sales of Vest	750.00
To Postage & Telegrams	4547.70	By Advertisement Received	24000.00
To Stationery & Typing	9754.01	By Interest on deposits	27554.51
To Hospitality & Catering Services	73322.75	By Life membership fees	29557.10
To Post Box renewal	1911.00	By Ordinary membership fees	2496.40
To Remuneration	2215.00	By Associate membership fees	420.00
To souvenir (17250.00)	17250.00	By Income from donations	258065.00
To Misc. Expenses	12614.00	By Registration fees from Seminar Participants, etc.	86498.50
To Annual function expenses	33202.50	By Misc. Income	3253.33
To Tax on interest	45.90		
To Travelling allowance	14354.00		
To Fuel	5077.00		
To Lodging & Boarding for Indian participants	25000.00		
To Karakorum expense	1642.00		
To Surplus (excess of income over expenditure)	158047.52		
	467038.44		467038.44

As per attached report

.....Sd/.....
Treasurer

.....Sd/.....
Secretary

.....Sd/.....
President

.....Sd/.....
Auditor

छलफल

सचिव तथा कोषाध्यक्षबाट प्रतिवेदनहरू प्रस्तुत गरिएपछि बैठकमा प्रस्तावित तीनवटा बुँदाहरू माथि विस्तृत छलफल गरी सो प्रस्तावहरू निम्न बमोजिम गर्नेगरी सर्वसम्मतिबाट पारित गरियो।

(क) समाजको विधान अनुरूप धारा ९ को उपधारा १ र २ मा प्रावधान भए अनुसार सम्मानित सदस्य प्रदान गर्ने बारे डा. श्री रमेश प्रसाद बस्न्याल, श्री कृष्णप्रसाद काफ्ले र डा. श्री रमेशमान तुलाधर भएको एक कार्यदल गठन गरी उक्त कार्यदलबाट कार्यकारिणी समितिलाई सिफारिस भइएको दुई व्यक्तिहरू कार्यकारिणी समितिको बैठकले समर्थन गरी वार्षिक प्रतिवेदनमा प्रस्ताव गरीए अनुरूप नेपालबाट डा. चन्द्रकान्त शर्मा र विदेशीहरूबाट फ्रान्सका डा. श्री पेरी बोर्डेलाई उक्त सम्मान १-४ अप्रिल १९९४ मा समाजबाट काठमाडौं आयोजना गरीने नवौं हिमालय काराकोरम तिबेट वर्कसप को समयमा प्रदान गरिने।

(ख) समाजको सदस्यता शुल्क बृद्धि गर्ने बारे सेप्टेम्बर ११, १९९३ देखि निम्न बमोजिम कायम गर्ने।

- प्रवेश शुल्कमा नेपाल तथा अन्य सार्क मुलुकहरूलाई ने. रू. १००.०० वा सो बराबर को मुद्रा र अरू मुलुकहरूलाई यु. एस. डलर ५.००।
- वार्षिक शुल्कमा नेपाल तथा अन्य सार्क मुलुकहरूमा सदस्यलाई ने. रू. १००.०० वा सो बराबरको मुद्रा र अरू मुलुकहरूमा सदस्यलाई यु. एस. डलर १०.००।
- नेपाल तथा अन्य सार्क मुलुकहरूमा सह-सदस्यलाई ने. रू. ५०.०० वा सो बराबरको मुद्रा।
- नेपाल तथा अन्य सार्क मुलुकहरूका आजीवन सदस्यलाई ने. रू. १०००.०० वा सो बराबर को मुद्रा र अरू मुलुकहरूमा आजीवन सदस्यलाई प्रवेश शुल्क समेत गरी यु. एस. डलर १००.००।

- नेपाल तथा अन्य सार्क मुलुकहरूका विद्यार्थी सदस्यलाई ने. रू. ५०.०० वा सो बराबरको मुद्रा।

(ग) सेप्टेम्बर ११, १९९३ देखि समाजबाट प्रकाशित जर्नल अफ नेपाल जियोलोजिकल सोसाइटीको सम्पूर्ण नयाँ पुराना प्रकाशनको बिक्री मुख्य निम्न बमोजिम कायम गर्ने र सो मुख्यमा विदेशमा पठाउनलाई लाग्ने हुलाक खर्च समावेश नगरेको।

- नेपालका सदस्यहरूलाई ने. रू. ३५.०० र सदस्य नभएकाहरूलाई ने. रू. १२०.००।

- अन्य सार्क मुलुकहरूका सदस्यहरूलाई यु. एस. डलर ५.०० वा सो बराबरको मुद्रा र सदस्य नभएकाहरूलाई यु. एस. डलर ८.०० वा सो बराबरको मुद्रा।

- अरू मुलुकहरूका सदस्यहरूलाई यु. एस. डलर ८.०० वा सो बराबरको मुद्रा र सदस्य नभएकाहरूलाई यु. एस. डलर १०.०० वा सो बराबरको मुद्रा।

माथि उल्लेखित सबै प्रस्तावहरू पारित गरीएपछि बैठकले विभिन्न सदस्य साथीहरूद्वारा उठाइएका सम-सामयिक प्रश्नहरू माथि छलफल गर्‍यो। केहि सदस्य साथीहरूले उठाउनु भएको प्रश्नहरू माथि कार्यकारिणी समितिका सदस्यहरूले जबाफ दिनु भयो भने केहि सदस्य साथीहरूले कार्यकारिणी समितिलाई सुझाव पनि दिनु भयो। छलफलको क्रममा उठेका मुख्य अंशहरूयही प्रस्तुत गरिएका छन्।

१. हालै माघ देशको विभिन्न भागहरूमा अति बृष्टि तथा बाढी पहिरोको कारण घटेका दुःखद दैवी प्रकोपको घटनालाई दृष्टीगत गरी समाजद्वारा उक्त दैवी प्रकोपबाट पिडीतहरूको सहयोगार्थ राहतको लागि प्रधान मन्त्री राहत कोषमा केहि रकम जम्मा गर्ने मनसायले विभिन्न सदस्यहरूबाट उठाइएका चन्दा रकम रू. १२१५/- मात्र भएकोमा सो रकम हाल सम्म उक्त कोषमा जम्मा नगरेको जानकारी दिदै सो

रकमलाई कसरी उचित सदुपयोग गरे ठिक हुने हो भनि समाजका सचिब श्री गंगाबहादुर तुलाधरले राख्नु भएको जिज्ञासामा श्री निरेन्द्रध्वज मास्के, श्री गोबिन्द पोखरेल, श्री कीरण कार्की, श्री तेजमान सिंह, श्री भरतमणि ज्ञवाली, श्री अमोदमणि दिक्षित, डा. श्री चन्द्रकान्त शर्मा, श्री कृष्ण मुरारी अमात्य र श्री अच्युतानन्द भण्डारीले आ-आफ्नो मन्तव्य प्रकट गर्नु भयो। छलफलमा निष्कर्षमा उक्त रकम प्रधानमन्त्री राहत कोषमा जम्मा गर्नु भन्दा समाजले आफ्नै सदस्यहरू मध्यबाट करिब १०-१२ दिनको एउटा भौगर्भिक अध्ययन टोलि खटाइ वैज्ञानिक कृयाकलापद्वारा भोगवान पुर्‍याउनु नै उचित हुने कुरा निर्णय गरियो। उक्त अध्ययन टोलीलाई हाल पृथ्वी राजमार्गको जोगीमारा र महादेव बेसीमा वैज्ञानिक अनुसन्धान गर्ने समाजका सदस्य साथीहरूबाट 'तर्म अफ रिफरेन्स' बनाइ कार्य कारिणी समितिलाई सीफारिसको लागि समयमै उपलब्ध गराउने र उक्त कार्यको लागि नपुग रकम समाजले ब्यहोर्ने पनि निर्णय गरियो।

- (२) समाजले गर्न खोजेको विभिन्न कार्यहरू नियम विनियमको अभावमा कार्यान्वयन गर्न गराउन वाघा कठिनाइ महशुस भएको र यसको लागि जहिले पनि विधानमा संशोधन गर्न उपयुक्त नदेखिएकोले समाजको कृयाकलाप सुचारु रूपले संचालन होस भन्नाको लागि आवश्यक नियमहरू मस्यौदा गरी कार्यकारिणी समितिलाई सहयोग पुर्‍याउने हेतुले गठन गरिएको 'नियम-विनियम उपसमिति' ले हालसम्म पनि विभिन्न कारणबस सो कार्य पुरा गर्न नसकेको जानकारीमा स्याउँदै उक्त उप समितिका संयोजक श्री अच्युतानन्द भण्डारीले समाजको विद्यमान वातावरण सम्बन्धी कार्य पनि उद्देश्यमा उल्लेख गर्नुपर्ने, सदस्यता प्रदान गर्ने सम्बन्धी कुरालाई अझ स्पष्ट तथा विस्तृत रूपमा परिभाषित गर्नुपर्ने सुझाव दिनुको साथै सदस्यता शुल्कलाई परिवर्तन गर्न कार्यकारिणी समितिलाई नै पुरा अधिकारदिने निर्वाचन सम्बन्धी कार्यमा आजसम्म बनेका निर्वाचन उपसमितिहरूको कार्यविधिमा देखापरेका बाधा र कठिनाइको आधारमा विभिन्न नियमावली तयार गर्नुपर्ने र नियमावली तयार भएपछि यसको आधारमा समाजले गर्न खोजेको कार्यहरू

कार्यान्वयन गर्न गराउनमा सरलता आउन सक्ने र कार्यकारिणी समितिले समय समयमा ती नियमावलीलाई संशोधन गर्दै लग्ने परीपाटी भएको खण्डमा अझ सबै कार्यहरू सुचारु रूपले संचालन हुन सक्ने राय पनि व्यक्त गर्नु भयो।

- (३) समाजले गर्न खोजेको कार्यहरूमा के कस्तो किसिमको कठिनाई भइरहेछ भन्ने श्री तेजमान सिंहको प्रश्नमा श्री अमोदमणि दिक्षितले विभिन्न कारणहरू दशाइ समाजले आफ्नो विधान अन्तरगत नियम-विनियमहरू बनाउन नसकिएकोले कतिपय कृयाकलापहरू कार्यान्वयन गर्न गराउन कठिनाइ भइरहेको कुरा संक्षेपमा ब्याख्या गर्नु भयो भने श्री गंगाबहादुर तुलाधरले समाजको दैनिक कार्य संचालन गर्नु देखि लिएर समाजको कृयाकलापहरू तुलनात्मक दृष्टीले पहिले भन्दा धेरै गुणा बढी भएको कारण उक्त कृयाकलापहरू सुचारु रूपले कार्यान्वयन गर्न कार्यकारिणी समितिले आफ्नो धेरै समय समाजको कार्य संचालनमा दिनु परेकोमा सोको अभावले कार्यान्वयन पक्षमा ढिलाइ र कठिनाइको महशुस भइरहेको ब्यहोरा अबगत गराउनु भयो।

- (४) डा. श्री चन्द्रकान्त शर्माले समाजबाट प्रकाशित हुने 'जर्नल अफ नेपाल जियोलोजिकल सोसाइटी' को प्रकाशनको लागि सम्बन्धित वैज्ञानिक लेखहरूको अभाव भएको कारण आ-आफ्ना लेखहरू ठीक समयमा उपलब्ध गराइ सहयोग गर्नुहुन सम्बन्धित निकायहरूमा साथीहरूलाई अबगत गराइएकोमा हाल सम्पूर्ण आवश्यक लेखहरू संकलन गर्न नसकी प्रकाशन कार्यमा ढिलाइ र कठिनाइ समेत भएको महशुस गरी सम्बन्धित नेपाली लेखकहरूलाई हिसला प्रदान गर्न स्वीकृत लेखहरूको लागि घटिमा ने. रु. ५००/- पारिश्रमिक दिने व्यवस्था भएमा लेखहरू समयमै संकलन हुन सक्ने तथा समाजको प्रकाशन कार्यमा गतिशिलता आउन सक्ने आफ्नो राय अभिव्यक्त गर्नुभयो।

यसमा डा. श्री दिब्यरत्न कंसाकार, श्री अच्युतानन्द भण्डारी र श्री अच्युत कोइरालाले सकारात्मक रूपमा आ-आफ्नो बिचार व्यक्त गर्नुभयो भने श्री गंगाबहादुर तुलाधरले सम्पादक मण्डलको बैठकमा पनि यसै सन्दर्भमा विशेष छलफल भइसकेको

स्मरण गराउँदै सम्पादक मण्डलले सिफारिस गरेको उक्त राय, स्वीकृतिको लागि कार्यकारिणी समितिमा पेश गरिएकोमा विभिन्न कारणबस स्वीकृत हुन नसकेको ब्यहोरा अबगत गराउनु भयो।

- (५) श्री भरतमणि जवालीले समाजका दसौं जना कर्मच तथा लामो सेवा अबधिपरा गरेका भुगभीविदहरूलाई श्री ५ को सरकारको नोकरीबाट अबकास दिइएकोमा भुगभीविदहरूको कल्याणको संरक्षण तथा सम्बर्द्धन गर्ने उद्देश्यले स्थापित यस समाजले किन केहि प्रतिक्रिया नजनाएको भनि गर्नु भएको प्रश्नमा श्री गंगाबहादुर तुलाधुरले उक्त सन्दर्भमा समाजको कार्यकारिणी समितिको बैठकमा आफूले सो कुराहरूलाई ध्यानमा राखि एउटा खेद प्रस्ताव पारित गर्न कार्यकारिणी समितिमा प्रस्ताव राखेको स्मरण गराउँदै सो प्रस्ताव विभिन्न कारणबस पारित हुन नसकेको जानकारी गराउनु भयो।

त्यसमा डा. श्री चन्द्रकान्त शमाले भुगभीविदहरूको साथै अरू विभिन्न पेशाका इन्जिनियरहरू पनि अबकासमा परेको र उनीहरूले अदालतमा मुद्दा पनि जाहेर गरी सकेको कुरा बताउनु हुँदै त्यस विषयमा समाजले प्रतिक्रिया दिन औचित्य नभएको र दिएको खण्डमा पनि केहि सार्थकता नहुने भनि आफ्नो राय प्रकट गर्नुभयो।

यसै सिलसिलामा श्री निरेन्द्रध्वज मास्केले नेपाल भौगर्भिक समाजका अध्यक्षको तर्फबाट शिष्टाचारको रूपमा समेत उक्त विषयमा कहिँपनि दुःख अभिव्यक्त नगरेकोमा त्यसको जवाफ अध्यक्ष मार्फत खोज्नु भयो भने श्री अमोदमणि दिक्षितले त्यसको जवाब दिनु हुँदै हाल सम्म पनि उपरोक्त विषयमा सबै सम्बन्धित गैर सरकारी निकायहरू मौन रहेको र साथै यस समाजले उक्त विषयमा बिज्ञप्ति निकालेको भनी श्री मास्केजीले लगाउनु भएको शंका र आरोप तर्क संगत नभएको कुरा ब्यक्त गर्नुभयो।

त्यसै सन्दर्भमा श्री अच्युतानन्द भण्डारीले सामुहिक रूपमा देशमा विभिन्न पेशामा लागेका होनहार व्यक्तिहरूलाई श्री ५ को सरकारले अबकास दिएकोमा खेद ब्यक्त गरी विज्ञप्ति निकालेको खण्डमा केहि हानी नहुने आफ्नो राय ब्यक्त गर्नु हुँदै अब समाजले निकट भविष्यमै सबै गैरसरकारी निकायहरूसँग

सर-सल्लाह गरी उपरोक्त सम्बन्धमा एउटा विज्ञप्ति निकाल्न सुझाव दिनु भएकोमा श्री अच्युतानन्द भण्डारीले नै उपरोक्त सम्बन्धी एउटा मस्यौदा तयार गरी कार्यकारिणी समितिलाई पेश गर्ने भन्ने छलफलको निष्कर्ष हुन पुग्यो।

- (६) श्री तेजमान सिले समाजको एउटा आफ्नै कार्यालयको अभावमा कतिपय सदस्य साथीहरूको बिच एउटा सम्पर्क स्थान समेत नभएको आफ्नो बिचार ब्यक्त गर्दै त्यसको लागि के गर्नुपर्ने हो भनि राख्नु भएको प्रश्नमा श्री वासुदेव खरेलले छुट्टै कार्यालय राखेमा समाजको आर्थिक भार बढ्नुको साथै कार्य शैलीमा पनि ढिलाइ हुने आफ्नो बिचार ब्यक्त गर्नुभयो भने डा. श्री चन्द्रकान्त शमाले समाजको आफ्नै भवन भएको भए जाति हुने थियो तर बहालमा छुट्टै कार्यालय राख्नु कहाँसम्म उचित हुने हो भनि पुरक प्रश्न गर्नुको साथै हाथैजस्ता भारतका विभिन्न समाजहरू पनि सम्बन्धित बिभाग वा विश्व विद्यालयहरूसँग संलग्न भइ कृयाकलापहरू गरिरहेका छन् भनि आफ्नो अनुभव बताउनु भयो। उक्त सम्बन्धमा श्री अमोदमणि दिक्षितले रोनास्टको सकृयतामा सबै ब्यवसायिक समाजहरूलाई एउटा छुट्टै कम्प्लेक्स बनाइ काम गर्ने गराउने तर्फ सोचाइ भएको कुरा उल्लेख गर्नु भयो।

- (७) श्री रमेश कुमार अर्यालले समाजको लागि जग्गा उपलब्ध गराउने बारे चालिएको कदमको के कस्तो भइरहेछ भन्ने प्रश्नको उत्तर दिँदै श्री अच्युतानन्द भण्डारीले हाम्रो समाज सामाजिक संघ संस्थामा नपरेको र विधान अनुरूप समाजको उद्देश्यमा बातावरण सम्बन्धी बाँदाहरूको अभावमा सो जग्गा उपलब्ध गराउने सरकारी निकायहरूबाट सहयोग प्राप्त नभएकोले सो कार्य पुरा हुन नसकिएको आफ्नो बिचार ब्यक्त गर्नु भयो।

- (८) श्री अमोदमणि दिक्षितले समाजद्वारा आयोजना गर्न लागेको "नवौं हिमालय-काराकोरम-तिबेट वर्कशप" सम्बन्धी विभिन्न कृयाकलापहरू माथि संक्षेपमा ब्याख्या गर्नुहुँदै उक्त वर्कशप पूर्णरूपले प्रभावकारी तथा सफलता पुर्वक सम्पन्न गर्न समाजको समस्त सदस्य साथीहरूलाई हार्दिक अपिल गर्नुभयो।

- (९) डा. श्री दिव्यरत्न कंसाकारले हालैको आइ.जि.सी.पी. नेशनल कमितिको गठन प्रकृया, त्यसको स्वरूप

संरचना र त्यसबारे केहि भूगर्भविदहरूको असन्तुष्टता
बारे जानकारी दिँदै त्यसमा आवश्यक कार्यवाहीको
अपेक्षा गर्दै समाजलाई एउटा पत्र दिइएकोमा त्यसबारे के
कस्तो प्रतिक्रिया भयो भन्ने प्रश्नको उत्तरमा
श्री अमोदमणि दिक्षितले आइ.जि.सी.पी. र त्यसको
कृयाकलापहरू बारे संक्षेपमा व्याख्या गर्नुको साथै
नेशनल कमिटिको गठन र उपरोक्त पत्र बारे समाजको
कार्यकारिणी समिति, सल्लाहकार परिषद र विभिन्न

उपसमितिहरूका संयोजकहरू समेट, भएको एउटा
बैठकमा छलफल भइसकेको कुरा स्मरण गराउँनु हुँदै
समाजले उपरोक्त विषयमा आफ्नो असन्तुष्टि प्रकट
गरी उक्त कमितिमा नेपाल भौगर्भिक समाज तथा
अरू सम्बन्धित शिक्षण संस्थाबाट पनि उचित
प्रतिनिधित्व हुनुपर्ने राय प्रकट गरी प्रतिक्रिया स्वरूप
सम्बन्धित निकायहरूमा पत्राचार गर्ने जानकारी
दिनु भयो।

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NEPALESE GEOSCIENTIST - SEARCH FOR AN IDENTITY

D. R. Kansakar

Groundwater Development Project
Department of Irrigation

It is still fresh in memory my early days of the year 1976, as a geologist in the restructured Department of Mines and Geology, that came into existence after the amalgamation of Nepal Geological Survey and the Nepal Bureau of Mines. I was a fresh university graduate filled with all the vigour and the thrills typical of all the fresh university graduates. Most of the Nepalese geologists in those days were educated either in India or the former Soviet Union. A few had even graduated from prestigious universities in the U. K. and the U.S. A. That was a period in the geological sciences when a major battle was being fought between the two powerful rival schools of thought on the topics of global tectonics. Belossou, a world class personality from the Soviet Union, was leading one school propounding the Vertical Upliftment Theory. On the other hand, an ever increasing number of geologists were searching for additional evidences in support of the Plate Tectonics Theory, initially put forward by Hess as Sea Floor Spreading Hypothesis that originated from Wagner's Continental Drift Theory. By mid-70's, the school supporting the Plate Tectonics Theory was gaining much ground as they have been able to provide unmistakable evidences from the Deep Sea Drilling Project, an international scientific program.

In Nepal, an UN assistance program brought a Swiss geologist, Dr. Toni Hagen, now a common name among Nepalese, to Nepal to carry out geological survey of the hitherto geologically unknown country. He spent almost a decade in making geological observations in every nook and corner of the country, and came to the conclusion that **nappe structure** dominated the tectonic construction of the Himalayas. His conclusion implied that **"Nepal is rich in nappe structures, but poor in mineral resource endowment"**. This

made quite an impression among the Nepalese as well as the Indian geoscientists, who were working in Nepal at that time under a separate technical cooperation program. However, this impression didn't last for a long period, as almost immediately after Dr. Hagen, a Soviet geologist, Dr. V. A. Talalov, arrived in Nepal for the purpose of minerals resource potential assessment of the country. In these time period, a team of Japanese researchers from Hokkaido University were busy doing geological research in Nepal Himalaya independently. These Japanese and Soviet geologists belonged to the opposite school of thought. Dr. Talalov, being a devout student of Belossou, strongly advocated the Block Tectonics Theory for Nepal Himalayas, as has been successfully applied in the Plateau area of the central Asia. Obviously, the geological map of Nepal was drastically changed from that of Dr. Hagen. Particularly, the Soviet geologist made a forceful impression on the Nepalese technocrats and the geoscientists as he offered a bright picture on mineral resource potential for Nepal. His report prepared in 1973 implied that **"Nepal Himalaya is devoid of nappe structures, but is rich in mineral resources"**. This was quite contrary to the opinion of Dr. Hagen.

The promise of rich mineral endowment in the country was perhaps the most important reason why the Nepalese geoscientists and the technocrats preferred to follow the Soviet geologists almost faithfully. As a young geologist, fresh from university and embodied with the new research results in Himalayas, I found it hard to maintain silence in this scientific debate, as my own field observations were leading me to the contrary. A worldwide revolution in this important topic of geoscience brought about by the firm establishment

of Plate Tectonics Theory in the late 70's with further scientific evidences together with new findings in other parts of the Himalayas however, encouraged a few Nepalese geoscientist to speak out their views loudly.

It is worth mentioning here the words of Dr. Hagen spoken during his recent lecture delivered to the members of Nepal Geological Society. He said, "In those days, I was the lone fighter in support of nappe theory in the Himalayas and earned the title of an ULTRA-NAPPEIST. But I was true to my observations and my conscience and I believed inside my heart that in the days to come, I am going to be proved correct. During my professional career, I had to fight yet another lone battle again but that was in support of the Block Tectonics Theory, the opposite school of thought, when I went to work in Bolivia, immediately after my assignment in Nepal." It is certain that had he simply applied the model of Alps and Himalayas to the Andes Mountain in Latin America, he would not have seen the days of his success. This clear message from Dr. Hagen teaches us a very important lesson that in scientific investigations, we must first be true to the facts, come to terms with the realities and then should seek to develop our ideas to understand it and explain it. Not the other way round.

In the late 50's and the 60's, when Nepal began to look beyond the window of British Raj through India, it laid a great hope in discovering and developing metallic mineral deposits for the economic development of the country. Also, the international situation was favourable in that the former colonial powers were dependent upon the raw materials obtained from the natural resources of the newly liberated countries in the South block. As a result, technical and financial assistance schemes were in vogue, both at bilateral and at multi-lateral levels for mineral exploration and development. However, with an evident gloom future of the North-South dialogue in the 70's, the industrialized nations of the North sought alternatives and intensified their research in the quest for new inventions. Their tiresome efforts for the past two decades in this direction successfully led them to numerous innovations and to-day, we are seeing innumerable products in substitute to

those from the natural resources. This has resulted into the decline or stagnant at the best, in the international market price of mineral commodities. With ever increasing cost of technology necessary for the development of mineral sector, to-day many of the developing countries of the world with big mineral deposits are facing economic crisis. The cases of Papua New Guinea and Zambia are good examples.

In Nepal, after nearly three decades of geological survey and mineral exploration, the Nepalese geoscientists have come to face the reality that Nepal Himalaya is constituted of too many nappes and has very little metallic mineral resources (as stated by Dr. Hagen). The exploration efforts in Nepal to this date have been successful in providing only a few non-metallic mineral deposits to the nation. It is indeed tragic that Nepalese people couldn't benefit even from those few mineral resources discoveries, except for some limestone deposits that have been fulfilling partly the country's demand of Portland Cement. More than a decade of time wasted in the development stage of Kharidhunga Magnesite deposit must be considered the biggest loss to the country.

To-day, in the mid-90's, the challenge for the Nepalese geoscientists is quite different from those of the 60's or the 70's. With a change in political system in the country, the needs and priorities of the Nation has also seen a new dimension. So has the global situation of demand and supply of mineral commodities. International market price for many of the metals are not encouraging specially when the cost of imported technology is taken into consideration. Worldwide, fund for mineral exploration is in short supply, be it at government level or at multi-national companies level. The poor show of interest by multi-national companies in petroleum exploration in Nepal is a burning example. Moreover, new opportunities are opening up for the multi-national companies in Indo-Chinese countries due to recent political changes. However, it is not only the case with a country like Nepal without any past history of mineral discovery, but there is a slack in investment in mineral sector in other parts of the world too. So, it is time that the Nepalese geoscientists come to terms with these hard situation and also with the

geological realities of the country and try to make the most out of what we now know we do have. For this, most important of all, the level of geological understanding of the Nepal Himalayas has, fortunately, improved. Now we know what we can have in near future and what we can never have. Nepal and the Nepalese people, therefore, must come to this reality of the country and it is the responsibility of the Nepalese geoscientists to make known of the facts to the people honestly.

On the brighter side, hard efforts of the Nepalese geoscientists in the last three decades have demonstrated favourable potential for non-metallic mineral deposits in the country. Specially noteworthy are the prospects of developing construction material, dimension stones and the precious and semi-precious stones in the country. Similarly, a vast potential for groundwater exploitation in the terai region has been discerned,

which, if harnessed efficiently, can convert the Terai region into Nepal's real grain basket. Again, with a boost in the infra-structure development works in the country, a new horizon has been opened up for the Nepalese geoscientists. The protection of the environment arm-in-arm with the economic development of the country is the new challenge to which Nepalese geoscientists must address and demonstrate their usefulness. It is up to the Nepalese geoscientists to accept these challenges and prepare themselves to deliver their invaluable service to the nation. It is sooner the better for the sake of the nation. But those challenges can be faced and overcome only if the Nepalese geoscientists begin to exercise some sort of soul searching within oneself. In other words, they will be successful only if they can define their identity first. An identity defined by himself, not the one provided by a foreign expert.

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INTERNATIONAL SEMINAR ON HYDROLOGY WITH A SPECIAL COLLOQUIUM ON ENVIRONMENTAL PROBLEMS AND WATER RESOURCES OF HIMALAYAN REGION

Geological and hydrological processes and phenomena are probably the two most important factors that virtually dictate the nature of the physical environment of the Himalayan region. Not only the distribution of the natural resources of the Himalayas are influenced by the ongoing geological and hydrological processes, but the economy of the countries of the region and the pace of development are also greatly related with the effects of these processes. The countries of the region have tremendous water resource potential and at the same time, these countries face a multitude of natural disasters such as earthquakes, floods, landslides, debris flows, glacial lake outburst floods (GLOF), thunderstorms etc. which owe their origin to the very processes. Both the geological and hydrological processes are closely inter-related so far as their effects are concerned.

A great deal of researches have been conducted during the last century on the geology and hydrology of the Himalayas by different researchers. Many more scientists of the region are presently engaged in such researches. But apart from the classical knowledge on these sciences, the newly acquired knowledge in these two scientific fields is not available to the young researchers of the countries in the region because of the lack of effective interaction among the scientists. It is therefore necessary for the scientists of the region to come together and discuss their findings and agree upon the mainstream and direction of future researches.

Nepal Geological Society had felt this necessity since quite some time and it had devoted, since its inception, all efforts to facilitate closer interaction between scientists belonging to different inter-related disciplines. Several seminars and workshops in a national scale had been organized

by the Society in the past in order to meet such goals.

Continuing such tradition, the Nepal Geological Society, jointly with the Association of Hydrogeologists of India (AHI), organized an International Seminar on Hydrology with Special Colloquium on Environmental Problems and Water Resources of the Himalayan Region at Kathmandu, Nepal during April 19-21, 1993.

The theme of the Seminar was chosen keeping in view of the deteriorating environment in the Himalayan Region and its impact on the entire subcontinent.

The International Seminar helped to achieve the following objectives:

1. Demonstrate the depth and potential of the environmental problems and alert politicians, planners, industrialists, farmers and the general public of the region about the alarming consequences of the deteriorating environment of this region.
2. Identify and review the atmospheric, glacial, surficial and groundwater resource potential of the region and create an awareness on the wise use of these natural water resources for the benefit of the society keeping in view of the possible environmental consequences that need to be assessed and mitigated.
3. Study the impact of engineering and mining activities, agricultural practices, soil erosion and land and water pollution on the hydrological regime of the region.

4. Provide a forum for exchange of the present state of knowledge in this field and share the past experiences of the international hydrologists and environmentalists for mutual professional advancement and national development.
5. Disseminate the existing knowledge on hydrology and its related sciences among the national and international scientists and engineers and help them improve their know-how by way of discussion.

This International Seminar was organized in collaboration with the Central Department of Geology, Tribhuvan University and was co-sponsored by AGID, ICIMOD, B. P. Koirala India-Nepal Foundation, UNESCO, BGR and other organisations like Nippon Koei Co. Ltd. It was participated by well over 113 scientists and engineers from Nepal, India, Japan and other

European countries. The participants of the Seminar discussed on the problems of precipitation, run-off, groundwater, hydrogeology, hydro-geochemistry, geophysics and remote sensing pertaining to the Himalayan Region. Water resources of the Himalaya and their implication on environment was one of the themes which was devoted special attention by the participants.

The Seminar was declared open by the Honourable Minister of State for Water Resources, Mr. Laxman Prasad Ghimire.

A volume containing the abstract of the presented papers has been published by the Society and is available at its secretariat.

The International Seminar was a milestone in achieving the stated goals of the Nepal Geological Society towards professional development and towards contribution in the task of national development.

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INTERNATIONAL DAY FOR NATURAL DISASTER REDUCTION (IDNDR)

NATIONAL MEETING AND SEMINAR ON GEOSCIENTIFIC INPUTS IN NATURAL DISASTER MANAGEMENT

Nepal faces a multitude of natural disasters such as earthquakes, floods, landslides, debris flows, glacial lake outburst floods (GLOF), thunderstorms etc. These phenomena occur frequently in the country causing an enormous adverse impacts not only on the individuals but also on the development efforts of the land-locked and poverty-stricken country. Fortunately, developments in modern science and technology have already identified methods and means of effective disaster management, which have been proved to be successful in mitigating the impacts and the resulting pains to a larger extent. Geologists and geoscientists in Nepal have understood this fact and hence have directed their efforts, individually as well as through the Nepal Geological Society, in many aspects of natural hazards studies and management of the resulting disasters.

In this context, it was natural that the members of the Nepal Geological Society responded to the call of the United Nations for natural disaster reduction by undertaking additional special activities during the UN declared International Decade for Natural Disaster Reduction (1990-1999). An IDNDR Council was formed within the framework of the Society in 1991. The IDNDR council of the Society aimed at mobilising the available resources within its members for greater communication in the scientific areas as well as for bringing out the message to the wider section of the society. The Journal of Nepal Geological Society and the Bulletin of the Nepal Geological Society are the tools available for achieving the goals. Additionally, the Society started observing every year the International Day for

Natural Disaster Reduction, which falls on the second Wednesday of October every year, by organising meetings and seminars on topics related with the possibilities and means of effective disaster management with participation not only of its members but also of a wider cross section of the society. Politicians, administrators, planners and decision-makers, social workers as well as scientists and technologists from other disciplines were also the participants to such meetings. These meetings were very much successful in raising awareness and in pointing out the necessity of coherent and combined national efforts for any effective gains towards fulfilling the objectives of the Decade.

This tradition of the Society was continued in 1993 also. The Society felt much honoured when it was invited by the Ministry of Home Affairs, HMG of Nepal to organise the IDNDR Day activities jointly and in coordination with all the activities by other agencies. Thus, a National 3-day programme for IDNDR Day-1993 was organised with the participation of the Ministry of Home Affairs, the Nepal Geological Society, the Water Induced Disaster Prevention Technical Centre (DPTC), the Central Department of Geology of Tribhuvan University, Nepal Scouts etc.

The Nepal Geological Society organised a one-day **NATIONAL MEETING AND SEMINAR ON GEOSCIENTIFIC INPUTS IN NATURAL DISASTER MANAGEMENT**. This national meeting cum seminar was inaugurated by the Honourable Minister of Home Affairs, Mr. Sher Bahadur Deuba. In his inaugural speech, the Hon. Minister congratulated the Nepal Geological Society for continuing the tradition of observing this

important international date in a befitting manner by organizing scientific discussion on the aspects of natural hazards faced by our country so as to identify the ways to reduce the natural disaster. The Minister asserted the audience that His Majesty's Government of Nepal was committed to the IDNDR concept and would undertake all necessary actions in order to achieve the overall goals of reducing the sufferings of the common Nepalese from the vagaries of the Nature. He invited the professionals and the agencies belonging to government, universities, professional societies and the public at large for greater involvement towards meeting the goals of IDNDR and promised that the government, acting as a facilitator, will provide assistance to achieve the required level of coordination of action.

Earlier, in his welcome address, the President of Nepal Geological Society, Mr. Amod Mani Dixit, emphasised the importance of the IDNDR concept for a country like Nepal and the necessity of a joint effort of government agencies, professional bodies, universities and international donor agencies in meeting the challenge of the Decade. He further pointed out the necessity of streamlining the national efforts in the direction of policies formulations and in the scientific and technical actions.

Mr. Krishna Prasad Kaphle, Vice-President of the Nepal Geological Society, elaborated the efforts and activities undertaken by the Society especially since the beginning of the Decade.

UNDP Resident Representative, Ms. Carol C. Long presented the global disaster scenario and informed the meeting of the various activities and the actions being undertaken under the framework of the United Nations towards reducing the impacts of natural hazards by implementing the programmes of effective disaster management as well as of the efforts of the UNDP Nepal in providing assistance to Nepal especially during the flood disaster of July 1993.

Mr. H. Oi, Chief Advisor of the Water Induced Disaster Prevention Technical Centre, Ministry of Water Resources, spoke of the activities being undertaken by the Centre and of the assistance being provided to Nepal under the programmes of Japan International Cooperation Agency (JICA).

Dr. Rajendra Bahadur Shrestha, Joint Secretary of Nepal Geological Society, offered the vote of thanks. The meeting was chaired by Dr. Chandra Kanta Sharma and convened by Ms. Damayanti Gurung.

The Meeting was followed by the Seminar on "Geoscientific Inputs in Natural Disaster Management", which was conducted in two technical sessions. Altogether, 11 technical papers were presented and discussed.

In the first session chaired by Dr. C. K. Sharma, six technical papers were presented and discussed. Mr. D. R. Pant presented the environmental problems and their prevention measures taken in some of the hydropower projects in Nepal. Dr. D. R. Kansakar highlighted the geologic causes of natural disasters and critically analysed the common notions about the relationship of forest cover and environmental protection in Nepal. He emphasised the role of geoscientists in clearing the concepts of environment protection and in seeking solutions to the environmental problems faced by the country. Mr. A. S. Dhakal presented a detailed picture of the damages caused by the flood and landslide disaster of July 1993 in Nepal. A paper on the environmental consequences of mining in the Kathmandu Valley was presented jointly by Mr. K. Karki and Mr. A. Koirala. Prof. M.P. Sharma talked on the need to include courses on natural disaster mitigation in the school curricula in Nepal. Dr. S. Dhital discussed the various disasters in Nepal caused by health professionals and health institutions.

The first session was convened by Dr. R. B. Shrestha while Mr. J. N. Shrestha and Mrs. R. Shrestha served as the rapporteures.

The second technical session in the afternoon was chaired by Prof. Dr. M. P. sharma. Dr. P. Gautam was the convenor and Mr. V. J. Shrestha and Mrs. D. Gurung served as the rapporteures of this session.

Mr. U. Shaky presented an assessment of the landslides along the Tribhuvan Highway triggered by the July 22 rainstorm and Mr. T. P. Adhikari talked on the potential uses of remote sensing technique in natural disaster management

in Nepal. Dr. R. M. Tuladhar stressed the importance of groundwater database as an effective management tool for groundwater resources development and the related natural disasters. Dr. S. Matsuura presented the historical development of river training works in Japan and elaborated the contribution of river training works in the industrialization process of Japan. Mr. M. S. Khadka and Mrs. R. Shrestha

presented a paper on pollution and monitoring situation of groundwater in Nepal and discussed the natural treatment processes and the steps possible for controlling the groundwater pollution.

The Meeting cum Seminar was yet another milestone of the Society in achieving the goals of the IDNDR in Nepal.

Abstracts of the Papers Presented

at

NATIONAL MEETING AND SEMINAR

on

INTERNATIONAL DAY FOR NATURAL DISASTER REDUCTION (IDNDR)

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**October 13, 1993
Kathmandu, Nepal.**

ENVIRONMENTAL PROBLEMS (DISASTER) AND THEIR PREVENTIVE MEASURES IN HYDROPOWER PROJECTS

D.R. Pant
Nepal Electricity Authority
Kathmandu, Nepal.

Hydropower is one of the most important natural resources of Nepal. Theoretically 83,000 MW electricity can be produced in Nepal. Due to complex geology and topography, Nepal is much susceptible to different natural disasters like landslide, earthquake, flood, glacial lake outburst flood (GLOF) etc. Proper use of available technology to minimize and mitigate the disasters

is quite essential for the efficient use of hydropower potential in Nepal. The Geotechnical Division of Nepal Electricity Authority (NEA) is dealing with such problems in the field of hydropower. The present paper deals with some of the disaster prevention and mitigation measures/programs undertaken by NEA in some of the hydropower projects of Nepal.

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NATURAL DISASTERS, FOREST COVER AND THE GEO-SCIENCE

D. R. Kansakar

Department of Irrigation
Kathmandu, Nepal.

The Himalayas belong to a young and dynamic mountain system on earth. Mountain building and the denudation processes have been in operation since the birth of the mountain system. Deforestation is only a recent phenomenon. The geological records suggest that the natural forces of denudation far outweighs the force of human intervention in the form of deforestation. The role played by forest cover in various aspects of the environment and in preventing natural disaster has been questioned by many researchers. The

operative processes in geology, geomorphology, hydrology and meteorology must be thoroughly understood and effectively applied in order that damage by such natural disasters could be mitigated or avoided altogether. It is time that the Nepalese geoscientists come forward to clear the various notions of the Environment and help address the real problems of the environment degradation in the country. The geo-scientific tools available should be refined and applied together with other sciences in mitigating future natural disasters.

MINING IN KATHMANDU VALLEY AND ITS CONSEQUENCES ON ENVIRONMENT

K. Karki and A. Koirala

Department of Mines and Geology
Kathmandu, Nepal.

The growing demand of construction materials in the Kathmandu Valley has led to the unsystematic mining of sand, gravel, peat and stone which are the main causes of the degradation of environment of the valley. In order to correct the present situation, the following measures are necessary:

- Good administrative system to handle the materials and appropriate Mining Laws are to be formulated.
- For the optimum utilization of these resources and to minimize the environmental degradation, there must be an equal contribution from the side of geoscientists, engineers, planners, government

organisations, local village or district authorities and the people of the Kathmandu Valley.

Better communications and frequent meetings are necessary among the concerned organisations.

Demand and supply situation of these materials should be studied, which should include the following points as well:

- Identify the mining areas as well as the areas prohibited for mining.
- Quality and quantity of the resources should be assessed.
- Proper method of extraction of these materials must be identified.

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ON THE NEED TO INCLUDE NATURAL HAZARD IN SCHOOL CURRICULA

M. P. Sharma

Central Department of Geology
Tribuvan University
Kathmandu, Nepal.

Natural events occurring suddenly and swiftly and consequently causing harm to the people and losses to the economy of their institutions are called Natural Disasters. Whether naturally occurring or man induced, the geological phenomenon are hazardous to people who build their structures adjacent to areas susceptible to de-stabilizing processes. For example, a landslide occurring in a rural or urban area is a hazard, while in a remote and unpopulated terrain, it would be just another geological event regardless of its intensity and dimension. Usually, it is the poorest section of the population that suffers most from hazards as they have no option but to continue living in the hazardous areas.

Society has generally depended on government as its protector from all enemies, both foreign and domestic. The geologic hazards such as earthquakes, floods and landslides are generally viewed erroneously as unavoidable phenomena. But it must be realised that the government must somehow prevent or control them.

The ultimate aim of environmental education is to ensure that effective actions are being taken to conserve and enhance the environment by all concerned. The actions should not always be guided by the protectionist policies which sets aside nature from people. Rather, it is necessary to make him live with nature with full knowledge of its hazardous processes so that he is also

capable to protect himself and the society from the disasters.

Natural processes have dual characteristics. When properly respected and understood, nature can act as a servant, but when abused and degraded, it can be a tyrant and affect adversely the society.

The solution of environment problems must rest on a very broad interdisciplinary and multi-disciplinary base. None of the scientific, technical or socio-political fields has a monopoly on the methods to resolve environmental conflicts and abuses.

Geologists must become involved in the decision making processes. The collection and dissemination of data and reports are inadequate if not followed by the implementation of action, through planning, management and the coordination of goals.

In the present revised curricula of primary education, environmental education is included as a separate subject with some portions on natural hazards. The course of study of secondary education is under revision. We can hope that the sufficient attention will be given to environmental education including a minimum of education on natural hazards. It has not yet received due attention in the university level education. The problems of natural hazards should be emphasised in the course of study for the non-formal adult education programme as well.

REMOTE SENSING APPLICATION IN NATURAL DISASTER MANAGEMENT: NEPALESE CONTEXT

T. P. Adhikari

Department of Mines and Geology
Kathmandu, Nepal.

The occurrence of natural disasters are identifiable on remotely sensed images. The information on both disaster potential and affected areas as inputs for disaster management can be

obtained from them. The selection of tools and techniques depend upon the type and the magnitude of the disaster. Scope and limitations of the remote sensing application in the Nepalese context are discussed.

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LANDSLIDES TRIGGERED AFTER THE JULY 22 RAINSTORM ALONG TRIBHUVAN HIGHWAY

A. Wagner, U. Shakya, A. N. Bhandary
ITECO (Nepal),
and V. Dongol
Tri Chandra Campus
Kathmandu, Nepal.

Rainstorm of July 20, 1993 was the heaviest rainstorm that had ever been recorded in the Tribhuvan Highway area. The total rainfall in 24 hour ranged from 295 mm at Chisapani Gadhi to 536 mm at Tistung area. Such a heavy rainfall caused strong wash-outs and landslides in the mountain slopes and generated large flood and deep scouring in the valleys. The Tribhuvan Highway, like other mountain highways, was severely damaged. Most seriously damaged stretches were from km 49+000 to km 53+000 before Tistung Pass, from km 71+000 to 76+000

after Palung and from km 91+300 to 97+500 after Daman. It was found that there is at least a slope failure or gully erosion or slope wash-out in every 20 to 100 m intervals of the road. Prominent geodynamic features generated were: debris fall, rock fall, wash-out of top soil and superficial slide in overburden soil and gully erosion. Debris flow and rock slides were localised only at some places. Such phenomena of intense mass wasting processes are attributed to the heavy precipitation, fragile geological setting and ruggedness of the mountainous terrain consisting of ridges and valleys.

GROUNDWATER DATABASE: A MANAGEMENT TOOL FOR GROUNDWATER RESOURCES DEVELOPMENT

R. M. Tuladhar
Department of Irrigation
Kathmandu, Nepal.

A computerised Groundwater Information System is developed mainly using the United Nation's GroundWater (GW) Software subordinated by some commercial softwares such as SURFER, HARVARD GRAPHICS and GRAPH in the BOX. This is considered as GroundWater Database (GDB). Its operation requires a minimum of 286 Personal Computer with 640 KB of RAM running under PC-DOS or MS-DOS preferably with a mathematical co-processor.

At present, GDB has incorporated all available basic hydrogeological data of 18 Terai districts and 3 Inner Valleys of Nepal. The GDB provides information on wells or processed data in the forms of tables, graphs, charts, litho-logs and maps to be utilised for various purposes. It is in operation largely to assist the Department of Irrigation in the investigation, planning and management of groundwater resources. Services

of GDB also include other governmental and non-governmental agencies, consultants and interested individuals. The GDB has now replaced old and outdated data filing system and the new system is proved to be easy and efficient to handle. However, it needs improvement as well as extension. Essential improvements include: (i) development of more data handling options, (ii) accommodation of more parameters and (iii) the improvement of the main program itself, while extension opportunity is provided by an urgent need of hydrogeological analysis of urban areas towards prevention from possible natural disasters related to groundwater. Groundwater in the capital city of Kathmandu is already over-drafted which has set alarms for groundwater related natural disaster. The first step towards prevention from any possible groundwater related natural disaster in the Kathmandu valley would be to establish a Groundwater Database.

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FLOOD CONTROL METHODOLOGY IN JAPAN - Retrospect over the Modern Flood Control Projects and Prospects for the Future Improvement

S. Yamamoto

Japan River Association

S. Matsuura

Ministry of Construction, Japan.

The history of modern flood control projects is retrospectively from the Meiji era to the present time, with reference to the future flood control improvements. The rapid urbanization, along with the dense concentration of population, properties and central management functions to major cities had great influence on the flood control projects that had been carried out assiduously mainly at large-scale rivers from the Meiji era to the aftermath of the war. The start and expansion of the integrated flood control measures, actualization of the measures against floods exceeding a design level and the progress in the

improvement of river environments- all these measures have much to do with the enhancement of national standard of living and the formation of urban-type society. Thus, rivers and the environments are changing dramatically, with the result that the improvement of environmental functions is becoming a focus in river projects, as well as the flood control and the water use that has the absolute priority in river projects before. It is believed that the river creation in harmony with flood control, water use and environments will have much greater importance hereafter in actualizing safe and comfortable towns and regions.

POLLUTION AND MONITORING OF GROUNDWATER AND THE PRESENT SITUATION IN NEPAL

M. S. Khadka and R. Shrestha

Groundwater Resources Development Project

Department of Irrigation

Kathmandu, Nepal.

Pollution of groundwater as a result of human activities are discussed. Natural treatment processes and steps possible for controlling the groundwater pollution are also dealt with.

Various aspects of groundwater quality monitoring have been compiled and its merits are

listed. Efforts made in the field of groundwater quality monitoring by some countries of Asia and the Pacific are reviewed.

Pollution and monitoring of groundwater in the context of Nepal is presented. A need for sincere and serious efforts in this field has been highlighted.

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HEALTH PROFESSIONALS, HEALTH INSTITUTIONS AND DISASTER

S. Dhital
phed-Nepal.

All disasters cause loss to the human life and health. Therefore, the role of health professionals and that of health institutions become important in *creating* certain forms of disaster. These forms of man-made disaster can be classified as

- Ia. Iatrogenic disasters affecting the individuals.
- Ib. Iatrogenic disasters affecting much larger section of the population (or generation).
- II. Health institution caused disasters.

It may seem that at least some of the iatrogenic disasters can be prevented or reduced by enforcing certain mechanisms in the existing rules and regulation related to the

present mode of health care delivery and by strengthening what we understand by health education. However, enforcing certain legal mechanisms alone is not enough to reduce these forms of disasters.

Prevention or reduction of the health institution caused disasters is a still more difficult task. To achieve this goal, radical conceptual changes regarding the definition of health, the role of health professionals and the role of the health institutions are imperative.

These conceptual changes will affect not only the health professionals and the policy makers, but more importantly, also the common people. And this will mean a new type of people's movement which does not fit in any of the known brands of conventional politics.

AN EXPERIENCE OF WATER INDUCED DISASTER OF JULY, 1993

A. S. Dhakal
Water Induced Disaster Prevention Technical Centre
Kathmandu, Nepal.

The worst water induced disaster hit the country on 19-21 July, 1993 resulting into heavy toll of lives and property. The impact of the disaster is bigger and deadlier in scale and magnitude than those of the past. Moreover, the destruction of the public properties almost cut off one part of the nation from the other creating distress, panic and artificial crisis in the country.

The cause of the disaster which were in the form of flood, landslide and debris flow was the incessant and unprecedented rainfall in the region of fragile young mountains. Bagmati, east Rapti and Kamala are the three basins which were

severely affected. Almost 32 districts were affected among which six were badly affected in terms of human lives lost. The human lives lost are 1,259 and the affected population is about 450,000. The properties lost is worth about Rs. 4,200 million.

This disaster, however, has also given us an opportunity to think about the better preparedness to cope with the disasters which the country may face in future. Identification of the parameters lacking for the relief, rescue, prevention and mitigation of the disasters seems to be the first task to be done by the people and the various organisations involved in the related field.

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ENVIRONMENTAL IMPACT ASSESSMENT : A CASE OF KHARIDHUNGA MAGNESITE MINE

D. K. Pradhan

Nepal Orind Magnesite P. (Ltd.)

Background:

Natural resources are the most important wealth of a landlocked himalayan country like Nepal. These include water, forest and mineral resources. The known major mineral resources in Nepal are limestone, magnesite, marble, dolomite, talc, zinc, lead, semi-precious stones and other construction materials.

Industrial development in any country acts as a booster of the country's economic growth. But it requires the exploitation of natural resources. The exploitation of natural resources, however, creates multiple effects on the environment of the entire area in the long run, which can contribute to the degradation of the ecosystem.

Location:

The first major mineral based fully export oriented mining industry of Nepal is the Nepal Orind Magnesite (Pvt.) Ltd. which is located at Kharidhunga of Dolakha District in Janakpur Zone. It is approximately 112 km northeast of Kathmandu along the Lamosangu-Jiri road at an elevation of 2700 m above msl.

Environmental Problems:

The exploitation of Kharidhunga Magnesite deposit at high altitude setting obviously causes environmental impacts. It causes impacts through land, air and water. Land pollution becomes pronounced during monsoon period as a result of increased soil erosion/run off water in the mines area. Also it affects the waste disposal area. This causes the problem of increased siltation/sedimentation in the downhill areas. Similarly, stream water pollution may develop in the rainy season due to the same process.

Dust is the major factor of air pollution in the Kharidhunga mines area. It is pronounced mainly in the dry seasons. Strong wind hitting the benches of quarries, waste disposal area, mines road and the operation of mobile mining equipments at the working areas and the operation of the drilling machines at the quarrying faces lead to dust pollution.

In the mining operation, noise pollution and ground vibrations also occur during the operation of drilling machines, crushing plants, rope-way and blasting works. The geography, topography, geology and climate of the Kharidhunga mine area and the physico-chemical properties of the mineral resource are fairly conducive to these environmental hazards. These features work together with the pressure of over population, poor economy and the lack of conservation awareness among the local people in the area.

Mitigation Measures:

The Nepal Orind Magnesite Company has fully realised the possibilities of the above mentioned environmental impacts from the mining operation. Therefore, the following mitigative measures have been adopted in order to address the problems:

1. An extensive network of gabion wall check dams have been constructed to control erosion, to trap sediments and to minimize downstream turbidity of the drainage flow in the area.
2. A major sediment impoundment structure, "tailing dam", with proper drainage system has been constructed to allow settling of solids eroded from active mines and waste disposal site. This structure can be expanded further in future.

3. Turfing, plantation of vegetation cover on the inactive area with exposed soil are the priority and the regular practice in the mines premises. The types of vegetation used are Pine, Populus, Hyggienut, *Uttise*, *Dhupi*, *Painy*, *Lakuri*, *Aaru*, *Kattus* etc.
4. Dust pollution is minimized by spraying water regularly in the quarry road and waste disposal area of the mines.
5. Other important measures taken are the provision of proper drainage in water saturated slopes, spring run-off, discharge of the side drains into natural block. The regular maintenance, repairment and the cleaning of the mine drains/roads/silt are practised to minimize water run off, soil erosion and sedimentation problems.

Conclusion:

The consequences of land and stream water pollution during the monsoon seasons due to mining operation in the Kharidhunga mines area in the form of erosion and siltation are recognised. The

natural run off water during rainy seasons contains about 10-20% by weight of suspended load, which on settlement on the agricultural land may decrease their fertility. The magnitude and extent of the adverse impact on agricultural land due to mining activity at Kharidhunga area is difficult to assess mainly due to lack of the qualitative and quantitative data. However, on the basis of visible symptoms of pollution, it has been observed that the crop productions in the vicinity of the mines are not significantly affected by the mining activities. On the contrary, the people in and around the magnesite deposit area are being increasingly benefitted economically by the industry. The area lies at high elevation with cold climate and hence the cropping season is short. Thus, it is a food deficit area. Development of natural resource based industry in a remote area as in Dolakha district therefore, must be encouraged for the economic development. However, adequate environment protection measures and resource conservation know-how along with economic viability study must be taken for which His Majesty's Government's help and cooperation is necessary.

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Participation in Seminars, Conferences and Workshops

The following NGS members participated in various Seminars, Conferences and Workshops during the period of February, 1993 to January, 1994.

Topic	Participants	Duration/Country
Study Meeting on Issues in Resource Management	Kharel, B. D.	February, 1993 Indonesia.
Country Workshop Training Course on Disaster Management Training Program.	Shrestha, J. N.	May 2-14, 1993 UNDP/DTCP/HMG, Nepal.
Disaster Management Country Workshop	Shrestha, R.	October 31-November 3, 1993 UNDHA/DTCP/UNDP/DPTC Nepal.

Best Wishes

The following members of the NGS are undertaking the stated course of study/Research this fiscal year 1993/1994. The Society wishes them success in their respective fields of study and research.

Name	Course	Country
Bajracharya, R.B.	PG Diploma in Earthquake Engineering	Japan
Dongol, G.M.S.	Ph.D in Geology	Australia
Gurung, D.	M.Sc in Paleontology	Japan
Madhikarmi, D.P.	M.Sc in Quaternary Geology	Belgium
Sikrikar, S.M.	PG Diploma in Engineering Geology	The Netherlands
Shrestha, R.M.	Ph.D in Quaternary Geology	Belgium
Shrestha, S.D.	Ph.D in Environmental Science	Japan

Completion of Master/Diploma/Training Programs

Nepal Geological Society extends its Hearty Congratulations to the following members who have recently completed advanced studies and Training Courses in various countries and wishes them success in their professional career.

Topic	Participants	Duration/Country
International PG Diploma in the Exploration, Exploitation and Management of Groundwater Resources.	Bhatta, A.P. Khatri, N. Pathak, D. Shakya, N.	March 2-June 26, 1993 Israel.
Training on Groundwater Modelling.	Kunwar, M.B. Tuladhar, R.M.	May 16-June 11, 1993 Japan.
Study tour on Groundwater.	Amatya, S.C.	June 13-16, 1993 Dhaka, Bangladesh.
Source and Seal Study Program for Petroleum Exploration.	Pradhan, U.M.S. Subedi, D.N.	June-July, 1993 Canada.
Training on Petroleum Geology.	Ojha, T.P.	July 21-September 7, 1993, Canada.
PG Diploma in Engineering Geology.	Bhattarai, T.N.	August 24, 1992 to July 24, 1993 The Netherlands.
PG Training Course on GW Tracing Technique.	Khand, S.P.	August 16-September 24 1993, Austria.
GW Resources Evaluation and Development.	Kansakar, S.B.S.	August 17-September 29 1993, Japan.
Petroleum Policy and Management.	Karki, R.K.	August 31-October 22, 1993, Norway.
Seismology and data processing course related to Seismic Network.	Kayastha, N.B. Chitrakar, G.R. Pandey, M.R. Tandukar, R.P.	September 6 -October 15 1993. September 6-January 6, 1993, France.
Fifth UN/CDG/ESA Regional Training Course on 'Remote Sensing Application to the Planning and Management of Environment, Natural Resources and Physical Infrastructure.'	Adhikary, P.C. Adhikary, T.P. Jnawali, B.M. Karki, K. Pant, S.	October 10-November 6 1993, ICIMOD, Nepal.
Management of Performance Effectiveness	Aryal, B.R.	January, 1994 Kathmandu, Nepal.

DISASTER AND ITS MANAGEMENT

J. N. Shrestha

Department of Mines and Geology

Disaster, natural and manmade, has shaped the human history since its beginning. Human race was both helped and threatened by natural disaster such as earthquakes, volcanoes, cyclones, floods, landslides, etc. By origin disasters can roughly be categorised into natural-earthquakes, volcanoes, cyclones, tornadoes; semi man-made-landslides, desertification, famine, drought, fires, epidemics; and man-made-nuclear radiation, drug abuse, acid rains, pollution etc. With the passage of time man-made disasters have increased relatively as compared to natural ones, gradually threatening not only human existence but also the survival of all living beings on the Earth. If this trend is not checked, this beautiful planet of ours will soon turn into a dead one not fit for any kind of life known to us.

Realising these fact has taken a long time. But recently a growing awareness is noted among inhabitants on this Earth. As a result almost every nation is trying to use physical and social sciences to understand and solve the problems created by disasters. Efforts are being made by many individual nation, UN, INGOs and at the national level by NGO's, Go's and local organisations. However, the perception of man-made and natural disasters has remained varied greatly from organisation to organisation and people to people.

Solving problems related to disaster requires great skill and efficiency at the government level since it is not a routine work. Situation at the micro and macro level has to be perceived and dealt with immediately on the spot since it affects the life of people. Hence, administrators, NGO's, INGO's and Go's have to be alert and prepared for crisis arising out of any kind of disaster. Crisis administration without prior preparedness may solve the problem for the time being, but it is always better to be prepared beforehand and to trust on God for shooting trouble.

Nepal, given its difficult terrain, poor infrastructure and resources is a highly disaster prone country. Adverse geographic situation coupled with rapid population growth and slow social and economic transformations have created imbalance of ecosystem and environmental degradation. Frequency of landslides, floods, epidemics, fires, droughts, famines etc. have been increasing year after year triggering a need to develop crisis management skill at all level of administration.

Institutional effort in disaster management was started in Nepal since the enactment of Natural Calamity (Relief) Act 2039 BS. Till then public orders were issued and relief provided only after a disaster had occurred. Increasing frequency of various disasters have pressured both government and social organisations to systematically study, organise and implement all aspects of disaster preparedness, mitigation, relief and rehabilitation works. Helps have been sought and received from various foreign countries and international organisations.

At present there are several committees at the district, zonal and national level to deal with the problems of disaster management. The committees at the district and central level have most active roles to play in any disaster management since they have to provide leadership in coordination and taking and implementing instant decisions.

To make these committees functional and keep them prepared in any eventuality, training of people from GO's, NGO's and INGO's is a must. Training and research creates more awareness contributing greatly to preparedness, control and mitigation of disasters.

With this in view, a Disaster Management Training Programme (DMTP) Nepal Country Workshop Training Course was organised by UNDP, Asia and Pacific Programme for

Development Training and communication Planning (DTCP) and HMG/Nepal from 2 to 14 May, 1993, in which I had an opportunity to participate from the Nepal Geological Society. Altogether 35 participants from GO's, NGO's and INGO's took part.

The seminar gave a good overview of what is conceived as disaster, their effects, their management as well as preparedness and the relief and rehabilitation works after their occurrences were discussed. It focussed mainly on district level management problems and their solution as well as the role of GO's, NGO's and INGO's as perceived by themselves and by others. It was a good opportunity to get acquainted with various aspects of disaster management such as vulnerability, preparedness, response, relief, rehabilitation, mitigation, reconstruction as well as methodology of their assessment. Since the workshop stressed on group discussions resulting into identification of problems and solutions by the participants themselves, the outcomes were more practical oriented. It was rather interesting to see how the role of a CDO or a doctor or army in a disaster was

defined by themselves and by others. Lack of perception, knowledge and training was clearly evident in terms of conflicting opinions. However, long and in-depth discussions cleared many things and it was possible to reach at a unanimous opinion about the roles of various organisations. The results and recommendations of the training course were summarised and forwarded to national seminar and conference on disaster management.

We, the geoscientist of a resource poor but disaster prone country, have an additional responsibility in this area as our combined efforts and knowledge can and must contribute greatly to disaster preparedness and prevention. It is heartening to note that this is being gradually realized by the planners and managers of the country as this seminar indicated. But this is not enough and geoscientists must be involved actively in every aspect and stage of disaster management planning and implementation. The Nepal Geological Society being the apex body representing all geoscientists of the country should take initiative in this.

*Best Wishes and Hearty Felicitations
on the Auspicious Occasion of
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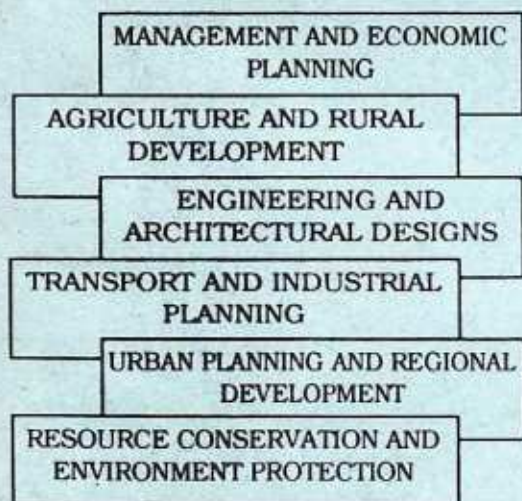
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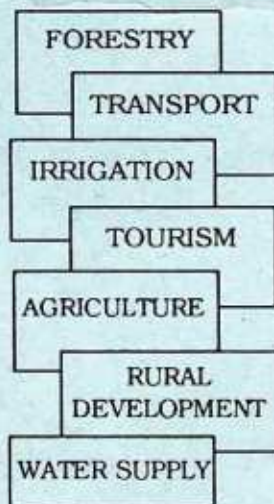
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